

2011

Library & Technology Strategic Plan 2011-2015

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Library and Technology Services



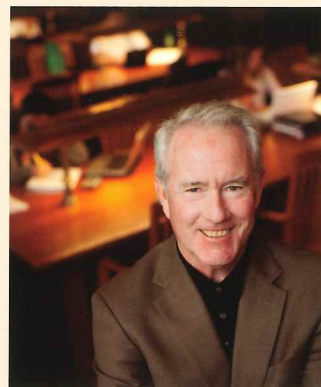
LEHIGH
UNIVERSITY.

A STRATEGIC PLAN
FOR 2011-2015

I WOULD LIKE TO THANK *the following Lehigh University faculty and staff members for their time and effort in helping Library and Technology Services update and revise its strategic plan. The guidance of these individuals was very useful and is appreciated.*

- Bob Trent, George N. Beckwith '32 Professorship, Department of Management
- MJ Bishop, Associate Professor, Teaching, Learning, and Technology
- Edward Whitley, Associate Professor, English
- Jack Lule, Joseph B. McFadden Distinguished Professor of Journalism
- Jim Dearden, Professor, Economics
- Matthias Falk, Associate Professor, Biological Sciences
- Richard Vinci, Professor, Materials Science and Engineering
- Brian Davison, Associate Professor, Computer Science and Engineering
- Natalie Foster, Associate Professor, Chemistry, Lehigh Lab Faculty Fellow
- Dana Stow, Director of Information Systems and Technology, Admissions
- Bob Siegfried, Director, Finance and Administration Systems

In addition to the individuals listed above, Library and Technology Services' various advisory groups have given us feedback on a regular basis throughout the years, keeping LTS focused on our goals. The groups and their current memberships are listed in Appendix 1. We greatly appreciate their efforts as well. Finally, I wish to celebrate the work of the LTS leadership and the entire LTS staff in accomplishing the overall strategies envisioned in the 2006–2010 Strategic Plan. It is their hard work, dedication, collaboration, and expertise that have brought these initiatives to fruition. They have translated the opportunities and challenges into effective services and programs that have



BRUCE M. TAGGART,
VICE PROVOST FOR
LIBRARY AND
TECHNOLOGY
SERVICES

been recognized at a national level. The Directors, listed below, have played a key role in leading this effort and in extending the vision into the future with this updated plan.

Susan A. Cady, Administrative and Planning Services
 Timothy J. Foley, Client Services
 Roy A. Gruver, Technology Management Services
 Manny J. Pena, Enterprise Systems Implementation
 Peg Portz, Distance Education
 Gregory M. Reihman, Faculty Development
 Christine M. Roysdon, Library Collections and Systems
 Sharon Wiles-Young, Library Access Services

VISION

LEHIGH UNIVERSITY IS COMMITTED TO PROVIDING A LEADING-EDGE LIBRARY AND TECHNOLOGY ENVIRONMENT THAT ENABLES FLEXIBILITY, INNOVATION, AND EFFECTIVENESS IN ALL AREAS OF THE ACADEMIC ENTERPRISE, INCLUDING LEARNING, RESEARCH, ADMINISTRATION, COMMUNITY-BUILDING AND OUTREACH.



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INTRODUCTION

This 2011–2015 *Library and Technology Services (LTS) Strategic Plan* is an update of the 2006–2010 plan. The update takes place within an important new context: Lehigh University’s new campus-wide strategic plan, *Advancing our Intellectual Footprint*. Joining with the campus community, LTS aspires to move Lehigh to a whole new level as a “premier residential research university, internationally recognized for research excellence and a distinctive student experience.” LTS has been very much involved with the formation of the campus-wide plan, with its grand challenges and four front runners. Our staff played significant leadership roles in the Plan’s Strategic Thinking process. Bruce Taggart, Vice Provost for Library and Technology Services, is deeply involved in the implementation process.

The purpose of this LTS Strategic Plan is to articulate our vision and mission and to define our direction. The Plan contains strategies but not tactics. Specific metrics are developed separately by those implementing the strategies set forth. Like all plans, it must be flexible enough to respond to unanticipated changes in the institutional and external environments. This Plan will require significant new resources in order to achieve its goals; for instance, the network infrastructure upgrade will require millions in capital expenditures. Even maintaining some programs at their existing levels will require the infusion of new permanent funding, especially for the highly successful TRAC Writing Fellows program and for science and engineering e-journals.

DIVERSITY

In addition to embracing the University Strategic Plan, the LTS Strategic Plan must incorporate the Lehigh University Diversity Initiative that seeks to “coordinate institutional priorities to support our diversity goals, including strategic planning, leadership recruitment, and accountability.” In keeping with this Initiative’s mission, each LTS strategy should be understood to include a diversity component wherever relevant. Thus we will actively promote an inclusive community that values, affirms, and advances the diverse backgrounds, interests, experiences, and aspirations of all members.



EACH LTS STRATEGY SHOULD BE UNDERSTOOD TO INCLUDE A DIVERSITY COMPONENT WHEREVER RELEVANT.

SUSTAINABILITY

Another value that we wish to articulate and apply to all relevant strategies is adoption of sustainable alternatives to conserve energy and care for the environment. LTS has both initiated and cooperated on many fronts (printing, recycling, lighting, etc.) and will continue to do so. Library and Technology Services staff members provide significant leadership in both the diversity and environmental initiatives on campus.

EXTERNAL SUPPORT

Finally we continue to embrace the responsibility to find resources outside the budget process, both to supplement university funding and to draw national and international attention to the reputation of Lehigh University. Recent years have seen considerable success in this area across a broad front, from federally funded projects (Library Services and Technology Act, National Science Foundation, Pennsylvania Research and Education Network or PennREN), to foundations (notably Mellon Foundation funded library-related initiatives), to important gifts in kind (J. P. Morgan Chase and Goldman Sachs donations of Egenera Computing Systems), and wonderful, generous giving by alumni and friends to the Linderman renovation program and Friends of the Libraries.



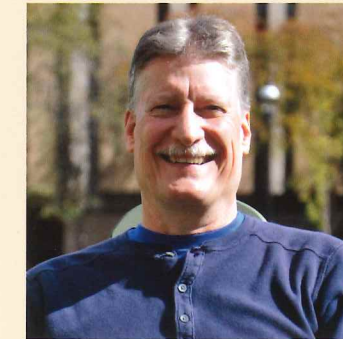
REFLECTIONS

ON LTS 2006–2010 ACHIEVEMENTS

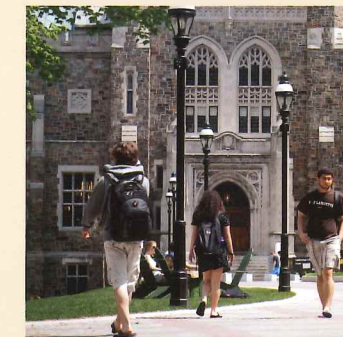
As context to the updated *Library and Technology Services (LTS) Strategic Plan for 2011–2015* we pause to look back over the goals set forth in the 2006–2010 LTS Strategic Plan and the degree to which these goals were accomplished. It was an ambitious, multi-dimensional plan, one that was in large part successfully completed so that Lehigh University could meet and exceed expectations for carrying out its educational, community, and research missions. Below are some of the highlights of that Plan and its fulfillment.

LINDERMAN LIBRARY

In the 2006 LTS Strategic Plan the renovation of Linderman Library was described as a “work in progress.” In the intervening years the transformation of Linderman has become one of our capstone accomplishments. This beloved campus building emerged after twenty-two months as a modern, functional library, classroom and event space with its stunning beauty enhanced in the process. Between 35 and 40 classes are now scheduled in the Linderman seminar rooms, and during the first two academic years a total of 275 special events were held. The gate counts for the first full year rivaled those of E. W. Fairchild-Martindale Library at nearly 700,000. Linderman Library also became truly welcoming and accessible to people with disabilities. In fall 2009 the Vresics Walkway, which provides a gracious approach to the building, was dedicated. By the close of Lehigh University’s Shine Forever capital campaign at the end of 2009, the fund raising goal for Linderman had been achieved; many donors are now recognized on an attractive vestibule plaque.



“THE TRAC PROGRAM IS THE MOST EXCITING THING THAT HAS HAPPENED WITH STUDENT WRITING SINCE I’VE COME TO LEHIGH...”
Professor Ben Wright



FACULTY DEVELOPMENT, WRITING ACROSS THE CURRICULUM, & INSTRUCTIONAL TECHNOLOGY

As noted in the 2006 LTS Strategic Plan, the Writing across the Curriculum (WAC) program had just been launched with the hiring of Dr. Gregory Skutches, the coordinator/director. Located organizationally under Faculty Development within LTS, it has flourished through workshops and individual consultations. The program’s current highlight is the Technology, Research, and Communications (TRAC) Writing Fellows initiative that engages outstanding undergraduate students in partnership with faculty members to improve the teaching and learning process. Forty faculty and 40 TRAC Fellows worked with 1,540 students in 68 courses or sections of courses over the

four semesters of the pilot. Fellows enroll in a four credit course taught by LTS staff (WAC and Faculty Development leadership, librarians, instructional technologists) and are paired with faculty members who wish to enhance the writing component of their courses. TRAC Fellows receive a modest stipend. Participating faculty members have been universally enthused about the program, and it will be continued and expanded as permanent funding becomes available.

Complementary achievements in the last five years that are also focused on enhancing learning outcomes include the expansion of the Graduate Student Teacher Development Program, assessment of undergraduate information literacy proficiency, and a wide variety of programs targeted to specific needs such as teaching large classes, assigning student-created digital video projects, engaging undergraduates, and faculty mentoring. In a related effort LTS staff were deeply involved in preparing for the Middle States ten year accreditation that took place in 2008. The Lehigh Lab continues to be a focal point of many of these activities and workshops, including the experimental work of Faculty Fellows Ed Gallagher (English) and Natalie Foster (Chemistry).

NETWORKING/PENNRN

The last LTS Strategic Plan update called for enhancing the access and connectivity so fundamental to Lehigh University's mission of education and research by upgrading Lehigh University's networking infrastructure. Major upgrades to specific buildings, listed below, involve replacing the cable plant to support 10 gigabit ethernet, additional ports, larger network rooms, ubiquitous wireless connectivity, and upgrades to related environmental systems.

LTS was a co-leader and co-founder of the Pennsylvania Research and Education Network (PennREN), a robust, statewide broadband education and research network. In February 2010 more than \$99 million in American Recovery and



ENHANCING THE
ACCESS AND
CONNECTIVITY SO
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MISSION OF
EDUCATION AND
RESEARCH...

Reinvestment Act (ARRA) funds was awarded to this initiative. PennREN is a coalition of Pennsylvania colleges and universities, research and healthcare organizations, and economic development entities. As a founding member and active participant, Lehigh University will realize substantial benefits through its access to state-of-the-art networking.

Other specific network-related achievements include:

- Completion of a five year networking plan with the assistance of IBM Global Technologies.
- Enhancements to the core network through the replacement of switches and new firewalls.
- Expansion of wireless capability, upgrade of existing wireless to the faster 802.11n standard, and initiation of a major project to install ubiquitous wireless in university residential facilities.
- Completion of comprehensive network upgrades due to major renovations (Linderman, 2007) or new construction (Science Technology Environment Policy Society or STEPS, 2010).
- Several buildings received gigabit upgrades prior to 2006 and since that time Sinclair Lab (2006), Whitaker Lab (2008), and Sherman Fairchild Center (2009) have also been completed.
- Completion of network schematic designs for Iacocca Hall and Imbt Laboratory, home of the Center for Advanced Technology for Large Structural Systems and the Energy Research

Center. Both designs were done by Bala Consulting Engineers in mid 2009.

■ Awarding of a \$1.8 million National Science Foundation academic research infrastructure grant to enhance connectivity for research done in C-Wing of the Iacocca Hall.

LEARNING ENVIRONMENTS

LTS strives to enable innovative, enriched teaching and learning through state-of-the-art classroom technology and other learning environments including virtual and online. In the past five years this has been achieved by making life cycle replacements to the equipment in the 85% of Lehigh classrooms that are technology enhanced. Within the last two years the Office of Distance Education has upgraded its broadcast facilities to digital equipment and added direct capture and archival capability to both studio classrooms. Room 625 in E. W. Fairchild-Martindale Library has also been upgraded to allow scheduling of Internet2 and ISDN capability for use by LTS, Distance Education, and the campus in general.

The Digital Media Studio (DMS) in E. W. Fairchild-Martindale Library opened in 2005 with iMacs and Mac Pros as well as a professional video and photo studio. The facility has been useful to many programs, such as the Art and Architecture Department Design major, Real Estate and Marketing in the Business College, documentary film-making by the English Department, and others. An LTS documentary resource team was created to support student-produced video projects. The DMS computers have been upgraded in the intervening years and the Media Center in E. W. Fairchild-Martindale Library has been converted to Macs to provide a consistent environment. Linderman Library opened with a new multi-purpose computer classroom for LTS and other campus classes and seminars, and as an additional public site for use by students. The IMRC facility in Maginnes Hall has been upgraded to a more collaborative



IT IS ABUNDANTLY
CLEAR THAT
THE TRANSITION
TO DIGITAL
SCHOLARSHIP IS
ACCELERATING...

space for students to work on group projects with the help of LTS instructional designers.

Online and virtual learning communities have also been embraced by the campus. LTS has advanced online learning through the adoption of Elluminate, a web conferencing system; the design and development of the Lehigh Island on Second Life; and the transition to an open source course management system (the Moodle-based Course Site). Audience response devices have been successfully integrated into teaching on a regular and routine basis when appropriate. In Distance Education and Summer School the migration from satellite or classroom-based courses to online courses continues. This effort is heavily supported by multiple LTS units, particularly instructional designers.

DIGITAL SCHOLARSHIP & SPECIAL COLLECTIONS

A scan of the scholarly environment worldwide makes it abundantly clear that the transition to digital scholarship is accelerating. All the goals set for this area within LTS have been met or exceeded. The *Beyond Steel* digital site will continue to expand as a scholarly work, well beyond its original scope. The digitization of the entire run of *The Brown and White*, Lehigh's

campus newspaper, is complete and the *Epitome*, Lehigh's year-book, is close to formal release as a digital site. These efforts have been particularly fruitful in garnering grant support—there have now been six grants related to digital sites.

In early 2010 a Council on Library Resources (CLIR) grant, funded by the Mellon Foundation, was awarded to Lehigh University in collaboration with the Moravian Archives to catalog its "hidden collections." This will provide new access for Lehigh researchers to an important local scholarly resource, provide stipends for Lehigh students working on the project, and serve as the basis for a new digital project. Special Collections has mounted a range of important educational exhibitions tied into its holdings and to campus events, including *Charles Darwin* and *Cartographic Perspectives*. LTS engagement with South Bethlehem is evident through its continuing focus on collecting historical materials on Bethlehem, digitizing historical materials, and collaborating in the creation of new digital content centered on current issues and residents.

Another digital achievement during 2006–2010 was the development of an online model for submitting and archiving Lehigh University dissertations and theses. Working closely with university departments, LTS conceptualized, initiated, and supported the transition from a paper-based to an electronic model for processing of dissertations and theses. LTS has also become more closely involved with the Lehigh University Press, providing technical guidance and facilitating the Press's digital forays.

THE NEXT GENERATION LIBRARY

LTS has taken a nationally recognized leadership role in multiple projects in the forefront of next generation library collections, services, and systems. As envisioned in the 2006 Plan, we have aggressively migrated from print to electronic journals and, most recently, to e-books. Lehigh librarians originated a shared print archive among libraries in Pennsylvania so that so-



AS ENVISIONED IN THE 2006 PLAN, WE HAVE AGGRESSIVELY MIGRATED FROM PRINT TO ELECTRONIC JOURNALS...

ciety-based journal print runs, with parallel electronic access, could be de-accessioned within collaborating institutions. This collaboration is now under consideration as a national model. In E. W. Fairchild-Martindale Library this innovation frees sufficient shelf space for print monographs and new user spaces without requiring the construction of additional facilities.

During the last three years LTS has embraced the next generation online library system through its leadership role in the Mellon-funded Open Library Environment (OLE) project. Four LTS staff members were chosen to serve on a prestigious initial planning group charged with developing a design for library online technology that will be flexible and customizable to meet the changing and complex needs of 21st-century libraries and library users.

In 2009 Lehigh became a charter member, with board representation, of Kuali OLE. We are now proceeding with the build of this system in partnership with the Mellon Foundation. Kuali OLE is a library-related division within the Kuali Foundation, a growing community of universities, colleges, businesses, and other organizations that have partnered to build and sustain open source administrative software for higher education, by higher education. Other members of Kuali OLE

include Indiana University, the University of Florida, Duke University, North Carolina State University, University of Chicago, University of Maryland, University of Michigan, and the University of Pennsylvania.

LTS has also continued its very productive involvement with the Council on Library and Information Resources Humanities and Social Sciences Fellows program with its third Fellow currently in residence at Lehigh.

LEVERAGING AND SECURING INSTITUTIONAL INFORMATION

Since the release of the 2006 LTS Strategic Plan, there have been major strides in securing institutional information. Included among these efforts are the laptop/desktop encryption program, the Identity Management Project, and the business continuity program. Another security advance is the server consolidation program whereby LTS has enabled campus offices with sensitive information to utilize virtual servers housed within the Lehigh data center to take advantage of security and backup routines.

LTS has also been very active in upgrading administrative systems to enhance services and introduce efficiencies. The implementation of the SunGard enrollment management suite for undergraduate admissions streamlines communications with prospective and admitted students. Multiple new reporting tools (such as Argos and Cognos), credit card processing functionality, and a records management system (the Banner Document Management System) are other new services that have been managed by LTS in recent years. The effect of these upgrades is to render institutional information more useful and to offer desired services to students and their families.



EACH YEAR HPC DAY BRINGS INDIVIDUALS TO CAMPUS ENGAGED IN GROUND-BREAKING RESEARCH THAT UTILIZES HPC...

HIGH PERFORMANCE AND SCIENTIFIC COMPUTING

To support scientific computing and the entire university, LTS has increased the Internet bandwidth substantially. In 2006 LTS provided 100 megabit commodity Internet bandwidth. Today we provide one gigabit or 1,000 megabits—a ten-fold increase. In addition, there have been multiple upgrades to the machines and software supporting high performance and scientific computing on campus. Under the leadership of the faculty Advisory Committee on High Performance Computing (HPC), LTS has partnered with faculty in the establishment of grid computing, the formation of a sustainable funding model, creation of a scientific computing graduate assistantship within LTS, and an annual day-long high performance computing conference on campus. Each year HPC Day brings individuals to campus engaged in ground-breaking research that utilizes HPC and provides an opportunity for faculty, staff, and students on campus to share with others how they are using advanced scientific computing in their work. The graduate assistant partnership provides additional support for scientific computing while helping graduate students to learn on the job.



CHALLENGES AHEAD

As stated in the Introduction, this LTS Plan aligns with the overall Lehigh University Strategic Plan with its articulation of “grand challenges” and identification of “front runner” initiatives: cluster faculty hiring, first year and beyond comprehensive undergraduate learning experience, engagement with South Bethlehem, and enhancing graduate education. The LTS challenges emerge from the need to be able to support the university in the overall plan and from a scan of the external environment from the specific perspectives of

- academic libraries
- computing, media and networking
- distance education
- faculty development and instructional technology

The ambitious goals in this *2011–2015 Plan for Library and Technology Services* will require additional resources to strengthen strategic areas so that LTS can support the outstanding faculty members and motivated students recruited to join Lehigh University.

The current external environment is universally characterized by exceedingly rapid change, rising expectations, and just on the horizon, major demographic shifts. Bulleted below are the specific challenges we can identify at this point.

- Student and parental expectations that teaching and learning will be engaging as well as effective, preparing graduates for specific careers or graduate programs and providing them with flexible core competencies. This is especially important with respect to the anticipated Lehigh Strategic Plan “first year and beyond” initiative.
- Faculty expectations for new scholarly information, technology, and support programs needed for effective teaching and research. This is especially important with respect to the anticipated “cluster hiring” initiative.
- Rapidly rising expectations for support in diverse mobile computing, social networking, and communications environments.

- Increased utilization of high performance and scientific computing, visualization, classroom technology, and collaborations on campus and across the globe.
- Growing use and transfer of large data sets on and off campus for teaching and research that necessitate high bandwidth and a robust networking environment.
- The relentless escalation in the cost of scientific, technical, and medical journal literature coupled with the need to acquire additional subscriptions and backfiles to support new research initiatives anticipated in the campus-wide Strategic Plan.
- The promise and current realities of open access scholarship as an emerging substitute for expensive commercial sources of scholarly information.
- Archiving and preservation of digital resources (data sets, scholarship, social networking, etc.) in an environment that must accommodate rapid technological change but lacks adequate standardization or established best practices.
- An expanding, competitive distance education marketplace in both the academic and commercial sector.
- Lack of clarity regarding the role and value of distance education at Lehigh University.
- The existence of disparate Lehigh University institutional data sources without sufficient integration to enable effective data mining for business intelligence.
- Accurately comparing cost of ownership of proprietary commercial systems versus open source alternatives.
- Securing faculty time and involvement in LTS-related initiatives such as digital scholarship, distance education, and experimentation with new learning technologies.
- The retirements of a large number of talented faculty and staff, within LTS and elsewhere in the university and in academia.
- Positioning Lehigh to support international and global academic initiatives.



HELP DESK

TEN GOALS

FOR LTS AT LEHIGH

In an era in which information technology has become ubiquitous in academic institutions, and in a social context in which information technology is widely viewed as critical to efficiency, competitiveness, and community, we at Lehigh will keep our focus on the goal of enhancing learning and research. The challenge is to make thoughtful use of information technology and library resources for the enrichment and extension of the learning and research environment. As Lehigh aspires to move to a whole new level as a “premier residential research university, internationally recognized for research excellence and a distinctive student experience,” information technology will be indispensable for the support of new collaborative and interdisciplinary

initiatives, including the Lehigh Strategic Plan Implementation “front runners.” A major resource challenge for Lehigh University will be balancing existing LTS priorities in concert with the assumed growth and demand for new technology support and new program offerings and services.

To this end, an agenda for action for the next five years has been identified by the management of LTS in collaboration with faculty and staff from throughout the university and in concert with the spirit and specifics of Lehigh University’s Strategic Plan Implementation.

This agenda embraces broad initiatives in ten major areas that all impact the teaching, research, and service missions of the university:

1. Expand Access and Enhance Computing Resources

To provide the opportunity to access information, library services, communication services and computing resources from any location, at any time for students, faculty, and staff.

2. Enhance Library Access, Services, and Collections

To supply students, faculty, and staff with a robust mix of physical and virtual library resources that enhance and stimulate research, scholarship, and student learning.

3. Create Flexible Teaching and Learning Environments

To create flexible, technology-enabled physical and virtual learning environments to meet Lehigh University’s pedagogical objectives, and to encourage technology as a means to extend and enhance Lehigh’s distinctive culture and style as a primarily residential university.

4. Foster Innovations and Excellence in Teaching and Learning

To work with faculty across the colleges to identify and implement forms of teaching that promote student learning and engagement.

5. Enhance and Promote Tools for Learning

To offer development programs and enhanced technologies for Lehigh University students, faculty, and staff to support learning.

6. Support Expansion and Global Access to Distance Education Programming

To provide global access to high quality distance education program offerings in all colleges utilizing a hybrid of delivery platforms for undergraduate education, graduate programs, and lifelong learning opportunities.

7. Enhance Support for Academic Research

To implement initiatives to meet high-end computing and network requirements in support of research and scholarship under faculty leadership and with LTS support.

8. Proliferate Lehigh’s Enterprise-Wide Information Systems

To enhance the core enterprise-wide information system and other integrated ancillary systems to expand the services available to the Lehigh community.

9. Enhance Visibility, Communications, and Outreach

To promote and support the mission and services of Lehigh University to local, state, national, and international constituencies through state-of-the-art communication technologies and marketing in collaboration with appropriate academic and administrative departments.

10. Expand External Support

To expand financial support for LTS Services through gifts and grants.

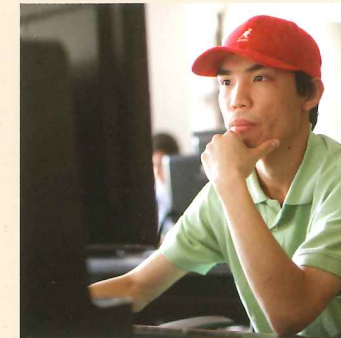


STRATEGIES & INITIATIVES

1. EXPAND ACCESS AND ENHANCE COMPUTING RESOURCES

To provide access to information, library services, communication services and computing resources from any location, at any time for students, faculty, and staff.

- Expand wireless network coverage to provide comprehensive access in campus residences, academic and administrative buildings, and more outdoor areas on and off campus.
- Complete a network and communications environment that permits universal access to common network resources for all classes of devices—fixed and mobile.
- Develop plans to establish expanded and authenticated access (potentially including 24-hour access) to public computing labs and software.
- Develop a plan that enables LTS to exploit evolving technologies to substitute user-owned mobile devices and services for university-acquired devices and services.
- Participate in building the Pennsylvania Research & Education Network (PennREN) to provide both campus and Lehigh Valley member access to relevant external research and educational networks.
- Reconstruct the university network to upgrade inter-building (outside cable plant) and intra-building (inside cable plant) based on university-wide priorities.
- Enhance the availability and reliability of Lehigh's network and computing resources by ensuring that the data center is renovated to meet future requirements; that appropriate power systems are in place for critical assets wherever they exist in the infrastructure; that data encryption becomes standard practice; and that Lehigh's disaster recovery site remains capable of supporting existing and planned data and computing initiatives.
- Evaluate all network and computing services to ensure that they comply with campus sustainability guidelines and green practices by adopting strategies such as virtualization of the data center, movement away from LTS-provided distributed



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2. ENHANCE LIBRARY ACCESS, SERVICES, AND COLLECTIONS...PAGE 16
3. CREATE FLEXIBLE TEACHING AND LEARNING ENVIRONMENTS...PAGE 16
4. FOSTER INNOVATIONS AND EXCELLENCE IN TEACHING AND LEARNING...PAGE 17
5. ENHANCE AND PROMOTE TOOLS FOR LEARNING...PAGE 18
6. SUPPORT EXPANSION AND GLOBAL ACCESS TO DISTANCE EDUCATION PROGRAMMING...PAGE 18
7. ENHANCE SUPPORT FOR ACADEMIC RESEARCH...PAGE 19
8. PROLIFERATE LEHIGH'S ENTERPRISE-WIDE INFORMATION SYSTEMS...PAGE 20
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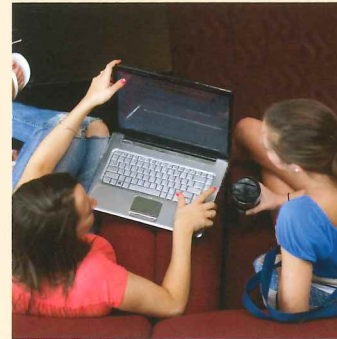
computing labs, and eliminating wasteful printing practices.

- Enhance technology services for persons with physical challenges (vision and hearing impairment, restricted mobility, and others) so that there is universal access to resources.

2. ENHANCE LIBRARY ACCESS, SERVICES, AND COLLECTIONS

To supply students, faculty, and staff with a robust mix of physical and virtual library resources that enhance and stimulate research, scholarship, and student learning.

- Participate in the creation and implementation of a next generation integrated library system through the LTS partnership with Quali OLE, a library-related division of the open source based, Mellon-funded Quali Foundation.
- Support Lehigh scholarship and institutional memory through the creation of a digital archive of Lehigh scholarship that also encompasses distinctive Lehigh archival materials.
- Maximize 24/7 access and support for scholarly information through acquisition of materials in digital formats, including electronic journal backfiles, electronic books, digital video, image collections, datasets and a variety of special collections.
- Provide collection support for emerging multidisciplinary areas such as environment, global studies, and health.
- Create and redesign library spaces to facilitate both student collaboration and individual learning and study. Create new spaces through strategic conversions of print materials to electronic format and participation in regional and national programs for cooperative print archiving.
- Enhance library support for persons with physical challenges as new technologies emerge as well as provide information literacy opportunities for ESL students and other student populations as needed.
- Enhance discovery of and access to library collections: extend access via mobile devices, release Lehigh library metadata to the open web, and seek opportunities to foster serendipitous discovery, such as a recommender service.
- Coordinate emerging sources of standards-based usage data



CREATE AND REDESIGN LIBRARY SPACES TO FACILITATE STUDENT COLLABORATION AND INDIVIDUAL STUDY...

emanating from publishers and internal sources to create a holistic model of the use of electronic materials.

- Adopt a campus-wide solution for access to and archiving of video and visual images for research and teaching.
- Facilitate integration of library collections—text, video, special collections—into the course management system. Use course management data to inform collection development.
- Collaborate with Business Services on digital textbook support.

3. CREATE FLEXIBLE TEACHING AND LEARNING ENVIRONMENTS

To create flexible, technology-enabled physical and virtual learning environments that meet Lehigh University's pedagogical objectives, and to encourage technology as a means to extend and enhance Lehigh's distinctive culture and style as a primarily residential university.

- Advise the university on the development of the next generation of university classrooms to accommodate Lehigh's broad range of teaching and learning styles.
- Equip all registrar-scheduled classrooms with presentation

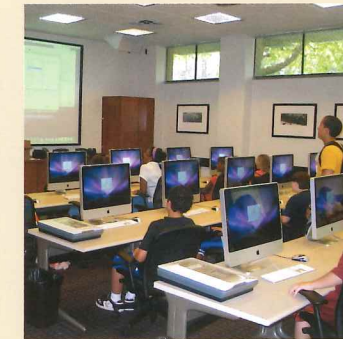
technology and upgrade selected classrooms with other technologies based on faculty usage and need.

- Explore ways to enhance interactive instruction in the classroom through uses of virtualized desktop environments and personal mobile devices to replace or supplement fixed instructor stations.
- Partner with faculty to build new experimental classrooms, including rooms that support collaborative learning, new forms of visualization and immersive virtual realities, lecture capture, etc.
- Ensure quality learning environments in online or blended courses by expanding and enhancing online and distance education course technologies.

4. FOSTER INNOVATIONS AND EXCELLENCE IN TEACHING AND LEARNING

To work with faculty across the colleges to identify and implement forms of teaching that promote student learning and engagement.

- Offer diverse faculty development opportunities that address challenges specific to Lehigh's varied teaching and research environments (large lecture courses, discussion-based courses, laboratory courses, service learning courses, blended courses, online courses, etc).
- Contribute to the university's strategic reconsideration of undergraduate and graduate education; support new approaches to teaching and learning that arise with new partnerships in the local community; and increase emphasis on diversity and globalization.
- Expand the Technology Research and Communication (TRAC) Writing Fellows program; collaborate with more faculty on improving undergraduate writing and analytical skills within the context of their disciplines, in coordination with information literacy and instructional technology initiatives as appropriate.
- Support faculty who are using digital media for instruction and student assignments by extending the work of the Documentary Resource Team, Digital Media Studio and Media Center.



"TECHNOLOGY ENHANCES IMAGINATION, ALLOWS US TO ASK NEW QUESTIONS..."
Professor Nik Nikolov

- Develop ways to encourage and support broader use of new forms of visualization in teaching and research (e.g., animation, simulation, virtual reality).
- Help faculty contribute to outcomes assessment by supporting the scholarship of teaching, educational research and the sharing of assessment results.
- Build on the success of the award-winning Lehigh Lab by continuing the Faculty Fellow program, in which a senior faculty member serves as motivator, mentor, and facilitator for other faculty wishing to incorporate new technologies into their teaching; support faculty exploration of new technologies; and showcase successful uses of innovative, effective applications of new technologies.
- Continue collaborative work with the Council on Library and Information Resources (CLIR), including the ongoing sponsorship of CLIR Fellows to introduce beginning humanities and social sciences scholars to research librarianship; engage CLIR Fellows in projects that jump-start new initiatives at Lehigh; encourage original projects proposed by Fellows that contribute to LTS service enhancements.

5. ENHANCE AND PROMOTE TOOLS FOR LEARNING

To offer development programs and enhanced learning technologies for Lehigh University students, faculty, and staff.

- Expand, enhance, and promote Lehigh's array of technologies for individual and classroom learning, such as open source course management software (Moodle/Course Site), synchronous communications software, and classroom note-taking software.
- Implement new delivery mechanisms for software used in courses.
- Use the online Senior Research Skills Assessment to study the outcome of a Lehigh education on information acquisition, evaluation and synthesis skills.
- Determine which 21st-century tools and techniques are most effective in the development of crucial information skills by digital learners.
- Explore opportunities to support new features of course management systems, mobile learning through netbooks, tablets, mobile phones, uses of geographic information systems etc.
- Support faculty use of digital video and digitized visual images in the instructional environment.
- Increase the use of real-time immersive video conferencing tools to support distance education, research initiatives, global initiatives, and professional development activities.
- Working with faculty, assess the value of current and emerging technologies to enhance learning within and beyond the classroom, including instructional gaming, virtual environments, and social networking tools.
- Enable students and staff to showcase and assess learning through e-portfolios—personalized, web-based publications and projects that are shared over the Internet.
- Increase recognition of and distribution of Lehigh University student research.



6. SUPPORT EXPANSION AND GLOBAL ACCESS TO DISTANCE EDUCATION PROGRAMMING

To provide global access to high quality distance education program offerings in all colleges utilizing a hybrid of delivery platforms for undergraduate education, graduate programs, and lifelong learning opportunities.

- Identify opportunities for new or expanded Distance Education programming through contacts with university academic units, including degree programs, certificate programs, professional development courses, cross-departmental or cross-college programs, and cutting-edge research based programs.
- Provide market research services to academic units to assist them in structuring programs to meet the needs of prospective students and to appeal to the strategic priorities of external business and professional entities.
- Research and adopt next generation tools and technologies that will enhance distance and traditional learning processes; provide access to new educational resources such as interactive communications, audio podcasts, webinars in captured lectures for online courses, and web-based shareable programs.
- Implement tools and systems to accommodate persons with

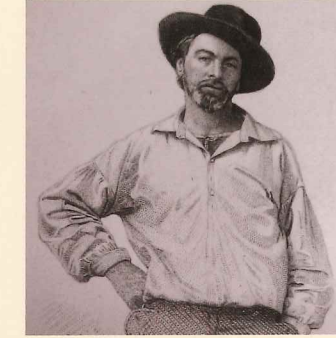
special needs, including closed captioning. Improve instructor-student-instructor in-room feedback systems.

- Expand cost-effective Distance Education promotion through the use of web-based advertising and alumni contacts.
- Increase student retention and build a strong network of Lehigh distance education alumni.
- Expand student access to distance education programming using multiple high quality delivery platforms: satellite, enhanced interactive Internet, traditional web-based, video conferencing, Internet2, mobile devices, podcasts, and DVDs. Adopt new technologies as they emerge.
- Strive for maximum efficiency and cost-effectiveness in program development, management, and delivery to meet the anticipated income levels for the benefit of Lehigh, participating colleges, academic departments, and programs while ensuring provision of high quality service and support to clients and students.
- Equalize access to library services, materials and software for remote graduate students.
- Help Lehigh become more green—Distance Education can be better for the environment.

7. ENHANCE SUPPORT FOR ACADEMIC RESEARCH

To implement initiatives to meet high-end computing and network requirements in support of research and scholarship under faculty leadership and with LTS support.

- Increase scientific computing consulting resources; for example, add mid-level scientific computing consultants.
- Complete the second phase of re-cabling high priority research-intensive academic buildings to provide reliable building networks with the high bandwidth required to conduct advanced research.
- Participate in the development of the Pennsylvania Research and Education Network (PennREN), a new coalition of Pennsylvania colleges and universities, research and healthcare organizations and economic development entities.



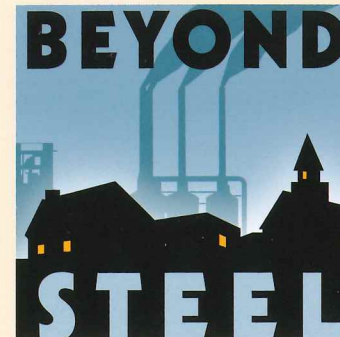
ACTIVELY SUPPORT
FACULTY
PARTICIPATION IN
OPEN ACCESS
PUBLISHING...

- Enhance journal and database access in support of new research initiatives, balanced with support for continuing programs.
- Promote awareness of scholarly communication issues. Actively support faculty participation in open access publishing/deposit and seek opportunities for campus-based open access publishing.
- Assess and refine the cost recovery budget model for high performance computing.
- Develop, explore and adopt appropriate open source software (such as OLE, Moodle, Mahara, Shibboleth, Open Journal System, Octave, and Fedora).
- Design and implement systems for research data collections across all disciplines. Develop appropriate consulting services to support these data collections.
- Provide tools to support research collaboration both within the university and with research partners outside the university.

8. PROLIFERATE LEHIGH'S ENTERPRISE-WIDE INFORMATION SYSTEMS

To enhance the core enterprise-wide information system and other integrated ancillary systems to expand the services available to the Lehigh community.

- Implement the Web 2.0 features for Self Service and Internet Native Banner, providing a consistent user experience across the entire Banner product suite.
- Provide ongoing enhancements to the Banner Workflow application used by the undergraduate admissions office.
- Develop and implement interfaces between Banner and various open source initiatives including Kuali Ole and Course Site.
- Expand Lehigh's identity and access management system to provide secure, timely, and appropriate access to more resources and systems, including federated access.
- Support and enhance secure Banner electronic payment applications ensuring compliance with credit card industry standards.
- Participate in the acquisition and implementation of a talent management system, and provide the support services for Banner integration.
- Assist and support the deployment of business intelligence reporting tools such as Argos and Cognos.
- Deploy a campus-wide calendaring system and integrate it into the Campus Portal.
- Address the growing needs of clients for web-based applications associated with enterprise systems and Lehigh's identity management system.
- Develop new ways to push customized information to individuals based on their roles, needs and interests.
- Advance the development of tools for collection of Campus Portal usage statistics to ascertain that target audience needs are being satisfied.



- Complete an upgrade from the current uPortal-based architecture to an open source architecture to offer social networking functionality in the Campus Portal.
- Expand the development of applications deployed on mobile devices.

9. ENHANCE VISIBILITY, COMMUNICATIONS, AND OUTREACH

To promote and support the mission and services of Lehigh University to local, state, national, and international constituencies through state-of-the-art communication technologies and marketing in collaboration with appropriate academic and administrative departments.

- Partner with South Side Bethlehem institutions and organizations, in concert with other Lehigh University efforts like the Southside Initiative and other local and regional groups, in the development of projects in areas of mutual interest such as local history, collections, digitization, the use of visualization in education, and others.
- Facilitate Lehigh University's global outreach through digital library collections made available worldwide and through technologies that support interaction across boundaries of time and space.

- Enhance overall institutional visibility by a sustained program of publicity in print and electronic media, leadership in professional organizations, papers in professional and scholarly publications, and presentations at conferences.
- Assume leadership roles in national and state-wide new initiatives.
- Communicate regularly and effectively to LTS constituencies through print publications, electronic communications, social networking, and events.
- Solicit feedback on a periodic basis from clients, using surveys, focus groups, and other tools to assess needs and to plan and evaluate LTS services.
- Review the structures of formal and informal advisory groups to ensure full dialogue about major changes in direction.
- Identify new prospects for diverse distance education programming such as school districts, intermediate units, community college networks, and career development centers.
- Develop and implement new tools for the easy creation and maintenance of Lehigh web sites and blogs.
- Transition the campus portal to a new environment supporting current web technology standards.

10. EXPAND EXTERNAL SUPPORT

To expand financial support for LTS Services through gifts and grants.

- Formulate LTS-related objectives for the next capital campaign in collaboration with the University Development Office.
- Develop supporting materials for these objectives.
- Cultivate current and past individual and corporate donors including those who have contributed to the construction of the E. W. Fairchild-Martindale Library and Computing Center, renovations in Linderman Library, library special collections, faculty development, and high performance computing.
- In collaboration with Lehigh's Development Office, identify potential new donors, including those that come into contact



ENHANCE OVERALL INSTITUTIONAL VISIBILITY BY A SUSTAINED PROGRAM OF PUBLICITY...

with LTS through contributions (monetary gifts, gifts of special collection or in-kind equipment), use of or interest in LTS services, attendance at Friends of the Libraries functions, or experience as LTS student assistants.

- Consider options for expanding and re-energizing the Friends of the Lehigh Libraries; evaluate the structure and composition of its Board.
- Identify public and private grant opportunities to support LTS strategic initiatives. Capitalize on these opportunities by regularly submitting grant applications in a variety of LTS service areas.



APPENDIX I

CURRENT LTS ADVISORY GROUPS

LTS would like to thank the following Library and Technology Services' advisory groups. We appreciate their work in providing feedback on a regular basis throughout the year and keeping us focused on our goals. The groups and their current memberships are:

■ Advisory Council for Information Services (ACIS)

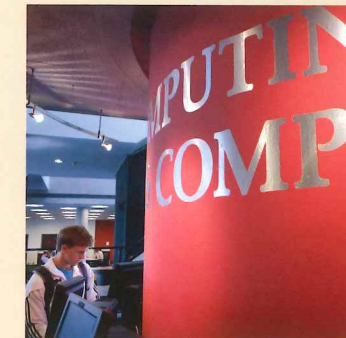
James A. Hall (chair), Associate Professor, Accounting; Alec M. Bodzin, Associate Professor, Teaching Learning and Technology; Thomas A. Chaves, Director of Advancement Services, Development Office; Susan Lantz, Associate Dean, Student Life; Robert E. Siegfried, Director, Finance and Administration; Tamas Terlaky, Professor, Industrial and Systems Engineering

■ Distance Education Steering Committee

John P. Coulter (chair), Professor, Mechanical Engineering and Mechanics; Rebecca S. Miller, Professor of Practice, Chemistry; Anthony J. McHugh, Professor, Chemical Engineering; Debra Protchko, Vice President of Marketing and Design Services; Gregory R. Reihman, Director, Faculty Development; Alex Wiseman, Associate Professor, Comparative and International Education

■ High Performance Computing Steering Committee

Brian Davison (co-chair), Associate Professor, Computer Science and Engineering; Ted Ralphs, (co-chair), Associate Professor, Industrial and Systems Engineering; Peter Bryan, Systems Manager, ATLSS, Civil and Environmental Engineering; Terry Delph, Professor, Mechanical Engineering; Bruce Dodson, Associate Professor, Mathematics; Ben Felzer, Assistant Professor, Earth and Environmental Sciences; Kamil Klier, Professor Emeritus, Chemistry; Ian Laurenzi, Assistant Professor, Chemical Engineering; Jeetain Mittal, Assistant Professor, Chemical Engineering; David Myers, Professor of Practice, Finance and Law; Slava Rotkin, Associate Professor, Physics; Meghanad Wagh, Associate Professor, Electrical and Computer Engineering



■ Library Users Committee

Jill Sperandio (chair), Associate Professor, Education and Human Services; Marie-Sophie Armstrong, Associate Professor, Modern Languages and Literature; Jill Brown, Assistant Professor, Department of Management; Philip Blythe, Professor, Mechanical Engineering and Mechanics; Barbara R. Pavlock (at large), Professor, English; Matthew Breitel, undergraduate student representative; Meghan Rosing, graduate student representative.

■ Library Liaisons

Discipline-based faculty representatives

■ LEWIS Executive Committee

Administrative staff leadership

■ Data Advisory Council

Faculty and staff representatives

APPENDIX II

SUMMARY OF LTS 2006–2010

ACHIEVEMENTS

■ Linderman Library

Linderman emerged after twenty-two months of construction as a modern, functional library, classroom and event space of stunning beauty. Between 35 and 40 classes are now scheduled in the seminar rooms each semester, and during the first two academic years a total of 275 special events were held in Linderman. By the close of Lehigh University's Shine Forever capital campaign the fund raising goal for Linderman had been met.

■ Faculty Development, Writing across the Curriculum, and Instructional Technology

The current highlight of Writing across the Curriculum is the Technology, Research, and Communications (TRAC) Writing Fellows initiative that engages outstanding undergraduates in partnership with faculty members to improve the teaching and learning process. Other related achievements include the expansion of the Graduate Student Teacher Development Program, assessment of undergraduate information literacy proficiency, and speakers and workshops targeted to specific needs. The Lehigh Lab continues to be a focal point of faculty development, including the experimental work of recent Faculty Fellows Ed Gallagher and Natalie Foster.

■ Networking/PennREN

LTS has enhanced network access and connectivity substantially. Major upgrades to Sinclair, Whitaker, and Sherman Fairchild included replacing the cable plant to support 10 gigabit ethernet, adding ports, and providing ubiquitous wireless. LTS became a founding member of the Pennsylvania Research and Education Network (PennREN), a coalition of Pennsylvania colleges and universities, research and healthcare organizations and economic development entities. PennREN was recently awarded a \$99 million ARRA stimulus grant. Selected other highlights include: completion of a five year networking plan, network schematic designs for Iacocca Hall and Imbt Laboratory, and awarding of a \$1.8 million NSF academic

research infrastructure grant to upgrade the C-wing of Iacocca Hall. LTS also expanded wireless capability to new locations, upgraded existing wireless to the faster 802.11n standard, and initiated a major project to install ubiquitous wireless in all residential facilities.

■ Learning Environments

LTS has made life cycle replacements to the equipment in the 85% of Lehigh classrooms that are technology enhanced. Distance Education has upgraded its broadcast facilities to digital equipment and added direct capture and archival capability to both studio classrooms. Room 625 in E. W. Fairchild-Martindale Library has also been upgraded to allow scheduling of Internet2 and ISDN capability. An LTS documentary resource team was created to support student-produced video projects. LTS has added multiple virtual learning enhancements: Elluminate software, Lehigh's Second Life Island, and the new open source course management system.

■ Digital Scholarship and Special Collections

Worldwide the transition to digital scholarship is accelerating as it is within LTS. The *Beyond Steel* digital site has achieved its original objective and will continue to expand. The digitization of the *The Brown and White*, Lehigh's campus newspaper is complete and the digitized *Epitome*, Lehigh's yearbook, is close to release. LTS has been awarded six external grants related to digital sites as well as a Mellon-funded CLIR grant to catalog "hidden collections" in the Moravian Archives. Another digital highlight during 2006–2010 was the completed transition of Lehigh University's dissertations and theses from paper-based to digital submission.

■ The Next Generation Library

LTS has taken a nationally recognized leadership role in new library collections, services, and systems. It has aggressively migrated from print to electronic journals and e-books. Lehigh librarians originated a shared print archive in Pennsylvania so that society-based journal print runs, with parallel electronic ac-

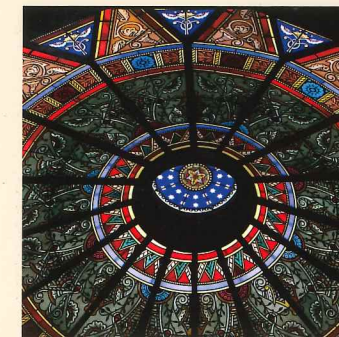
cess, could be de-accessioned. This innovation frees sufficient shelf space for book growth and new user spaces in E. W. Fairchild-Martindale Library to avoid the construction of additional facilities. LTS has embraced the next generation online library system through its leadership role in the \$2.38 million Mellon-funded Open Library Environment (OLE) project. Lehigh became a charter member of Quali OLE, now proceeding with the build of this system in partnership with the Mellon Foundation. LTS has also continued its very productive involvement with the Council on Library and Information Resources Humanities and Social Sciences Fellows program with its third Fellow currently in residence at Lehigh.

■ Leveraging and Securing Institutional Information

Major strides in securing institutional information have included the laptop/desktop encryption program, the Identity Management Project, and the business continuity program. LTS has also been very active in upgrading administrative systems to enhance services and introduce efficiencies such as the implementation of the SunGard enrollment management suite for undergraduate admissions. Multiple new reporting tools (such as Argos and Cognos), credit card processing functionality, and a Banner records management system are among other new services.

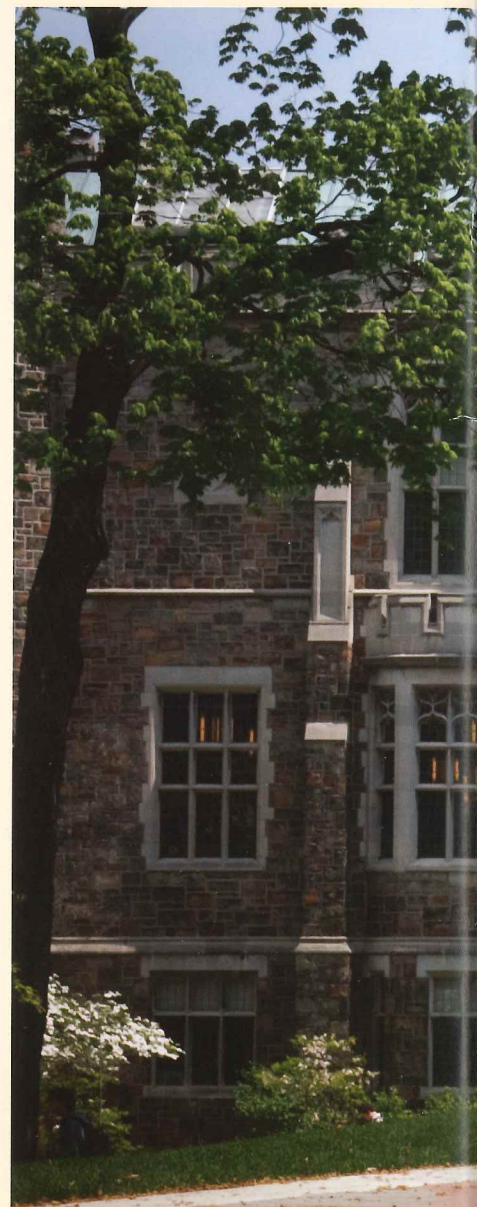
■ High Performance and Scientific Computing

Under the leadership of the Advisory Committee on High Performance Computing (HPC), LTS has partnered with faculty in the regular upgrading of resources, establishment of grid computing, the formation of a sustainable funding model, creation of a scientific computing graduate assistantship within LTS, and an annual day-long high performance computing conference on campus. The graduate assistant partnership provides additional support for scientific computing while helping graduate students learn on the job.



BY THE CLOSE OF
LEHIGH UNIVERSITY'S
SHINE FOREVER
CAPITAL CAMPAIGN
THE FUND RAISING
GOAL FOR
LINDERMAN HAD
BEEN MET.

Most of the photos by Douglas Benedict



Library and Technology Services

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